importance of position in the treatment of fracture, and especially in those in which, from the patient's debauched habits or bad constitution, the soft parts are prone to take on the phagedænic form of ulceration. It shows also the great rapidity with which this ulceration occurs, and is also an example of the very speedy union which sometimes takes place in compound fracture after an attack of phagedæna. The treatment which was adopted is that which is now, we believe, though variously modified in detail, universally adopted in principle in the London hospitals—namely, tonics and stimulants. The disease itself is one far less often seen at the present time than a few years ago, when there was a regular epidemic of it in many of the metropolitan hospitals.

III. SUPPURATING CYST IN THE NECK.

Under the care of W. LAWRENCE, Esq.

[From Notes by NEWTON IRE, Esq., House-Surgeon.]

Harriet L., aged 34, was admitted on June 10, 1857, under the care of Mr. Lawrence, on account of considerable swelling on the right side of the neck resembling a tumour. It was nearly as large as a cocoa-nut, and extended from the top of the ear to the bifurcation of the sterno-mastoid muscle. It was firm on pressure, but with a decided sense of fluctuation at the upper posterior and lower anterior points, and situated below the sterno-mastoid muscle.

It seemed that she had first found a small swelling in the neck eighteen months before admission. She had been for some time under treatment at another hospital, where it was painted with iodine. The swelling had come without any cause, and had produced no symptom, except that latterly deglutition had been somewhat interfered with. On June 14 she was put under the influence of chloroform, and Mr. Lawrence introduced a grooved needle into the swelling, which was found to contain purulent fluid. The cyst was then freely opened, in order to do which several fibres of the sterno-mastoid muscle were divided, and two or three arteries required ligature. Between eight and ten ounces of pus were evacuated, and the swelling immediately disappeared. A piece of lint was put in to keep the wound open, and to stimulate the lining membrane of the cyst to throw out granulations. This was removed next day on account of inflammation of the surrounding skin, with swelling and pain in the neck; and leeches were applied. She progressed favourably after this, and was discharged on July 1.

REMARKS. This case is an example of the great difficulty which often exists in the diagnosis of deep-seated tumours containing fluid, and of the great advantage which is derived from the use of the grooved needle in such cases. This instrument seems to have survived the ridicule cast upon it by a celebrated surgeon lately deceased, and practitioners have ceased to give themselves credit for the exquisite tact which can in all cases distinguish between things so nearly (if not absolutely) identical as the feeling of a tense fluid and a very soft solid.

UNIVERSITY COLLEGE HOSPITAL.

STRUMOUS DISEASE OF THE TESTICLE.

Under the care of J. E. ERICHSEN, Esq.

[From Notes by V. BAZIRE, Esq., House-Surgeon.]

EDWARD K., aged 30, a spare, weakly-looking man, with an anxious expression, thin hair, etc., was admitted under Mr. Erichsen's care, on account of strumous disease of the left testicle. There was no history of strumous disease in his family. He had been a rather weakly boy, but since the age of puberty had enjoyed good health. He had been for a short time in the army, latterly as a horse soldier, and was discharged on account of the present disease. About three years before his admission, the right testicle began to swell a little, and felt hard and nodulated. There was no pain in it, except in the epididymis after pressure. He attributed the disease to having hurt himself against the pommel of the saddle. His general health continued good. He went into hospital, where the part was painted with iodine. This, however, did not check the disease. He was discharged, but returned six months afterwards to have a hydrocele tapped. This was done, and two months afterwards, the sac was again tapped and injected with iodine. The fluid did not again accumulate, but the testicles went on slowly increasing in size, the left having become affected a year after the right; in six months

(i.e., in June 1856), an abscess formed in the left testicle, which had previously contracted adhesions to the scrotum, burst and discharged some yellowish cheesy-looking substance, mixed with healthy pus, and about a month afterwards, a fungoid mass protruded from the opening.

He then went again into hospital, where a compress was applied, and as this did no good, the fungus was touched with potassa fusa; and this proving equally ineffectual, the surgeon proceeded to remove the fungus. The wound healed in about a month after the operation, but another abscess formed at the lower part of the gland. He was then sent on furlough for two months, and as he came back no better, with the abscess discharging a little, and the right testicle swollen and hard, he was discharged from the service in February last. In the beginning of June, the right testicle followed the same course as the left, i.e., an abscess formed, followed in six weeks by the protrusion of a fungous growth from the opening, which has been gradually enlarging and ulcerating. He has noticed of late some diminution in the sexual appetite. His general health also has been declining, the strength and spirits having become somewhat impaired, but there is no cough, or other symptoms of phthisis. He complains of slight pain in the testicles. The left scrotum presents two puckered cicatrices; the remains of the testicle are very small. The right testicle is swollen and indurated; a fungoid mass, about the size of a walnut, formed of the substance of the gland, protrudes through a large opening in the scrotum.

Two days after his admission, Mr. Erichsen proceeded to shave off the fungus; but, finding that the tubercular disease extended deeply into the substance of the gland, and probably involved the whole of it, he decided upon removing the testicle. This was done accordingly, the vessels of the cord having been included in a simple ligature of whipcord before the removal of the gland. The patient did remarkably well, and was discharged cured in less than a fortnight.

Original Communications.

THE RECENT DEATH FROM CHLOROFORM AT BRISTOL.

By JOHN SNOW, M.D.

THE account of the accident from chloroform in the BRITISH MEDICAL JOURNAL of March 13th, shows that death took place by paralysis of the heart. As Dr. Wm. Budd said, the patient "died from the primary action of the chloroform on the cardiac ganglia, whereby the action of that single muscle, on which all the functions of life depend, was instantly stopped." But this has been the mode of death in every accident from chloroform, the particulars of which are related. In six of the recorded cases the paralysis of the heart took place, as in the recent case at Bristol, without insensibility having been previously induced. In the remaining cases, however, the patients were rendered more or less insensible before the fatal accident occurred; and in four cases there was an evident over action of chloroform on the brain, in addition to its fatal action on the heart. One of these four was the previous fatal case which occurred in the Bristol Infirmary, on January 21st, 1854. That patient was a woman, aged 59, with an old dislocation of the humerus. She inhaled one drachm of chloroform from a hollow sponge. "Nothing unusual occurring in the patient's condition during inhalation, a second drachm, in about five minutes from the first, was poured upon the sponge, and the inhalation was continued. Almost immediately after the addition of the second drachm, the chloroform was withdrawn, as the patient's breathing became stertorous; and immediately afterwards her pulse, which had hitherto continued pretty firm, was suddenly imperceptible, the respiration ceasing at the same time." (ASSOCIATION MEDICAL JOURNAL, 1854, p. 109.) The chloroform in this instance acted directly on the heart, as well as on the brain, otherwise the pulse would have continued for some time after the natural and ordinary breathing had ceased. The pulse has continued after the breathing in one or two accidents from which the patients have been restored by artificial respiration; and it is most probable that it has done so in the three or four cases in which persons lost their lives by imprudently inhaling chloroform when no one was present.

The mode in which death takes place when the vapour of chloroform is continued of the strength in which it can safely be administered to a patient, is for the breathing to become embarrassed before it ceases, and for the pulse to go on beating for one, two, or three minutes afterwards. An animal can easily be restored by artificial respiration during the interval whilst the heart is still beating; and there are besides often one or more deep gasping inspirations just at the moment when the heart is ceasing to beat, which often have the effect of restoring the creature to life if the chloroform have been withdrawn. The proper strength at which the vapour of chloroform should be inhaled, is four or five per cent. of vapour to 95 or 96 per cent. of air. With vapour of this strength, I feel very confident that no accident from chloroform would happen in the hands of a careful and attentive medical man.

With air containing twice the above quantity of vapour of chloroform, animals can be killed by sudden paralysis of the heart, and they die exactly like the patients who have suffered fatal accidents from this agent. When small animals are placed in air containing ten per cent. of vapour, they die suddenly in a state of agitation, like the man at the Bristol Infirmary, without being first made insensible; or they can be suddenly killed without the agitation, if they have previously been made insensible by vapour of a weaker strength. There is every reason to conclude that all the patients who have died from chloroform in the presence of a medical man, have breathed the vapour just before the accident of much more than the proper strength; probably of not less than eight or ten per cent. I believe that there has been no death really due to chloroform in any case where the medical man was making any attempt to regulate the percentage of vapour in the inspired air. When a drachm of chloroform is poured in a hollow sponge, it is quite possible that a patient may breathe air containing eight or ten per cent. of vapour. One hundred cubic inches of air at 60° Fahr. will take up fourteen cubic inches of vapour of chloroform when fully saturated, and the resulting compound will contain twelve per cent. of vapour. It is quite true, that the air which passes over a sponge or handkerchief does not usually get fully saturated, and that the patient often breathes a good deal of air which has not come in contact with the wetted part of the handkerchief or sponge; the air passages, moreover, often refuse air which contains a large amount of vapour, and for these reasons patients may commonly breathe chloroform from a handkerchief or sponge without accident. There is, however, always some risk of accident when it is endeavoured to make a patient completely insensible in this way, as the amount of vapour in the inspired air cannot be regulated with any approach to accuracy. The persons who administer chloroform in this manner do not get uniform results; they are not aware that the effects of chloroform are as exactly in proportion to the quantity which enters the lungs of the patient, as the wound is in proportion to the depth to which the surgeon's knife enters the flesh. Patients are supposed to be more or less susceptible of the effects of chloroform irrespective of their evident physical condition, and when a fatal accident occurs, it is usually attributed to some peculiarity in the patient.

Out of fifty recorded cases of death from chloroform, however, eleven of the patients are related to have previously inhaled it, and been made insensible by it, without ill effects. It is not probable that more than twenty-two per cent. of the persons who have hitherto inhaled chloroform, have inhaled it more than once; and, therefore, those with whom it has been proved to agree, seem quite as liable to accident as others, a circumstance entirely confirming the view, that accidents do not depend on any peculiarity of the patient who suffers them.

In the fatal case which occurred in Bristol in 1854, the coronary arteries were diseased, and a considerable proportion of the fibres of the heart were found in a state of incipient fatty degeneration. This amount of disease of the heart is, I believe, not at all uncommon in patients who inhale chloroform for surgical operations; and in the recent case in the Bristol Infirmary, the affection of the heart was so slight, that Dr. Budd says there was nothing in the slightest degree to account for the accident. The only patient I have lost whilst inhaling chloroform (*Medical Times and Gazette*, 1852, vol. ii. p. 361.), had, indeed, advanced fatty degeneration of the heart, of which we were aware during his life. But it is my opinion that he died of his heart-disease, and not of the chloroform. His pulse ceased whilst he was straining and holding his breath, as if he were beginning to be affected by the pain of the operation. This case has not prevented me from administering chloroform

to every other patient with symptoms of disease of the heart who has come before me, and has required to undergo a surgical operation. Whilst I admit that fatty degeneration of the heart is by no means a desirable accompaniment to the inhalation of chloroform, I consider that it offers a strong reason why the patient should not be subjected to a painful operation without the use of this or some other narcotic vapour. I have frequently observed that the pulse intermits, and the sounds of the heart are entirely suspended, for as much as five seconds at a time, when a patient is straining under the pain of a trifling operation, such as the ligature of varicose veins; and I consider that such a state of the circulation would be much more dangerous to a weak or fatty heart, than the effects of chloroform when carefully administered.

Some alteration in the condition of the heart can very often be found when looked for after death, and has been met with in many of the persons who have died from the effects of chloroform; but there are only four cases out of the whole fifty in which fatty degeneration of the heart is reported to have been decidedly present, and only in one of these in an extreme degree; and I think it not improbable that this complaint has been as frequently present in the patients who have inhaled chloroform without accident. According to my experience, extreme debility, and early infancy, and extreme old age, offer no objection to the use of chloroform. The patients who are least suited for it, in my opinion, are robust and athletic men; they are the most difficult to bring under its influence, and require the most care to avoid accident. They are, however, the persons who least require to be rendered insensible for slight operations. Out of fifty-one accidents which have happened from chloroform, thirty have occurred in the male sex, although females inhale this agent nearly twice as often as males, according to my experience. Infancy and old age have been singularly free from accidents from chloroform; and in proportion to the numbers living in each decennial period, the greatest number of accidents have happened between the ages of 35 and 45, when the frame is usually the strongest and most robust.

I am in the habit of using an inhaler which has been described in this JOURNAL; but I do not consider that its use will prevent accidents, unless it is employed for the purpose of regulating the amount of vapour in the air. If the bibulous paper is arranged the same in July as in January, and the valves are employed in the same manner, it would be very likely that it might lead to accident. Persons who are unwilling to give the subject of chloroform any great scientific consideration, may yet cause insensibility with it by means of a handkerchief or hollow sponge, without risk of accident, if they first dilute it with an equal measure of rectified spirit. I have frequently used it in this way in operations of the face, and I have not found it cause headache, as Dr. Herapath states. Indeed, the spirit remains behind in the sponge, very few drops of it are inhaled; and in a protracted operation it is desirable to be provided with a dry sponge from time to time, on account of the spirit which remains. The effect of the spirit is to lessen the amount of vapour which the chloroform yields to the air. One hundred cubic inches of air, when saturated with vapour from a mixture of equal parts, by measure, of chloroform and rectified spirit of wine, only take up eight cubic inches of vapour, instead of fourteen. The air takes up enough vapour to cause insensibility, but not enough to cause sudden accident. I think it is Dr. Wilkinson, one of the Physicians to the Royal Infirmary at Manchester, who administers the chloroform in that institution, and he informed me that he had long administered it mixed with an equal measure of spirit with very satisfactory results. If headache had followed its use, I feel sure that he would have noticed the circumstance. Mr. Prichard, in commenting on his case, seems inclined to use the chloroform in future diluted with spirit.

I cannot agree with Mr. Prichard and others, who propose to diminish the number of accidents from chloroform by restraining its use to a few great operations, as I consider that accidents are more likely to be avoided by a constant familiarity with the agent. The medical officers of Guy's and St. Thomas's Hospitals had a strong objection to narcotism by inhalation for the first two or three years after the practice was introduced, and chloroform was used much less frequently in these institutions than in the rest of the hospitals of London; yet it was in those two hospitals that two deaths from chloroform occurred, before any such accident had happened in any other hospital in this metropolis. The greatest benefit to be derived from causing insensibility during operations is, by extending the benefits of surgery. A surgeon could always advise an

operation, but he could only perform it in those cases in which he obtained the consent of his patient. With the use of an anæsthetic, which he can confidently recommend on all occasions, however, he is able to perform almost every operation he recommends, and at the time, also, when it is most advisable.

It would, moreover, be very inconsistent to confine the employment of chloroform to great operations, as the only reason for giving it in any case is to avoid the strong odour, and other inconveniences, of sulphuric ether. It should be recollected, that the prevention of the pain of operations did not commence with chloroform. It was as thoroughly and completely established with sulphuric ether as ever it can be. The insensibility was induced in almost every operation in St. George's and University College Hospitals during the greater part of 1847 without a single failure, and in the time which is most desirable in employing chloroform, viz. in about four minutes. Sulphuric ether is apparently altogether incapable of causing sudden accidents like those which have occurred from chloroform. It is still very extensively used in America and some parts of the continent of Europe, and I believe that no accident has ever occurred from its use, unless it be one in France, which is, however, doubtful. It is a matter both for surprise and regret that those surgeons in England who do not feel that they can use chloroform with safety, do not again resort to the use of sulphuric ether. It should be used alone, not mixed with chloroform, which, being less volatile, would be left to the last, and inhaled when its great strength would be most objectionable. Indeed, one accident has been recorded as occurring in America from a mixture of ether and chloroform.

18, Sackville Street, 13th March, 1858.

REMOVAL OF THE ENTIRE BODY OF THE SCAPULA, FOR SARCOMATOUS DEGENERATION OF ITS STRUCTURE.

By ALBERT G. WALTER, Surgeon, Pittsburgh, America.

JOHN KLING, a farmer, residing in Franklin Township, Westmoreland County, Pennsylvania, aged 44 years, of hepatic constitution, had enjoyed good health until some two and a half years ago, when pains of a rheumatic character were felt about the left shoulder, not, however, so severe as to interfere for a considerable time with his daily duties. About a year ago, a firm tumour became perceptible on the body of the left scapula, with occasional dull and lancinating pains. The tumour steadily and gradually increased, and with its increase the pains became more severe and constant. When he applied for admission into my hospital, it had attained a size as large as the head of a child three years old, was hard, immovable, and firmly attached to the body of the scapula; the skin covering it was slightly red, and traversed by enlarged veins. There were two fistulous openings on its surface; one caused by a seton which had been passed by a medical practitioner some time before; the other the result of an abscess which opened spontaneously. This latter led to a cavity in the diseased structure, exuding a glairy mucous fluid in small quantity. His sleep had become so broken by continual pain, and his appetite so injured, that his strength was much reduced, and his pulse small and rapid.

On a careful examination of the tumour, from its nature and firm attachments, I determined on resection of the scapula, assisted by Drs. Henderson, Lusk, and Gunster, on September 12th, 1854. A long and free incision was made from the acromion process horizontally to the posterior border of the scapula, and another from the centre of the first directly downwards below the margin of the tumour. The flaps of skin thus formed were reflected; the neck of the scapula, being found sound, was freed by touches of the knife; a chain-saw was passed underneath, and the body of the bone severed from its neck: the whole mass and body of the scapula was then detached from the thorax. Profuse bleeding from the subscapular artery occurred, which was arrested by ligature. The wound was lightly filled with lint; the flaps of skin approximated, and retained by a few stitches, a linseed-meal poultice covering the whole: and the patient was removed to bed.

It is worthy of note, that before commencing the operation, chloroform was administered, but discontinued, from its effects on the pulse and respiration, causing a sudden corpse-like appearance of the patient. All danger was, however, averted by artificial inspiration, with the tongue drawn forward; and

the operation began while the patient was yet partially insensible to pain. For several days, the injurious effects of the anæsthetic continued, the patient feeling very sick, with frequent vomiting; the circulation very feeble. Recovery, however, gradually took place; the wound suppurated duly and kindly; appetite returned; all functions became healthy.

At the end of four weeks, the large wound had entirely closed in part by first intention; the residue by suppuration. A week later, the patient left the hospital, being able to make considerable use of his arm. A year afterwards I heard from him, expressing his gratitude and delight at being freed from a painful disease, and able to follow the laborious duties of a farmer. Such was the freedom of motion and restoration of power in the arm that he deemed it no longer necessary to observe the advice I gave him on leaving (to give it all possible rest, and to attempt no exercise but of a gentle kind).

The extirpated tumour, upon examination, was found to consist of a cartilaginous mass filled with spiculae of bone, the periosteum of the scapula being absorbed, and its surface corroded and covered with stalactiform excrescences.

The success of the operation in the foregoing case, though less in extent than that of Professor Syme, in which the entire scapula with its neck was successfully removed, is not the less interesting on account of the great freedom of motion and free use which the arm retained after the whole of the scapula up to its neck had been removed.

Clinical Lecture

DELIVERED IN THE

QUEEN'S COLLEGE, BIRMINGHAM,

ON MARCH 13TH, 1858.

By JOSEPH SAMPSON GAMGEE, Esq., Surgeon to the Queen's Hospital.

BONY TUMOUR OF SCROTUM: LIGATURE OF HÆMORRHOIDAL TUMOURS: COMMINUTED FRACTURE OF BONES OF LEG: REMOVAL OF EPITHELIAL GROWTH FROM ANUS: FATAL CALCULUS OF BLADDER.

GENTLEMEN,—Before entering into the consideration of the cases now in hospital which I have selected for comment this day, I wish to call your attention to a case of bony tumour formed in the scrotum, related in the last number of the *North American Medico-Chirurgical Review* by Dr. Kerr. The case is especially interesting to us at present, as supplementary to the lecture I recently delivered to you on Calcification and Ossification of Tissues and Organs, as pathological conditions.

Dr. Kerr's patient was a young man, 28 years of age, in good health, admitted into hospital at Canton, September 1856, with a tumour in the scrotum as large as an infant's head, which had been growing twenty months. It felt hard and dense, like a mass of stone or wood beneath the scrotum; the skin—healthy—moved freely over it. Both testicles were healthy, but it was necessary to remove the left one in dissecting away the tumour. "The weight of the tumour was five pounds, and it was found to consist of numerous cartilaginous lobes, of various sizes, densely impacted together with cellular tissue, in which large quantities of bone were deposited. When macerated and cleaned, it presented somewhat the appearance of a coral formation, springing from an irregular semicircular base. Numerous spiculae of bone were scattered throughout the tumour, where, apparently, several points of ossification had been established in the different lobules. So numerous were these spiculae, that the knife could scarcely be put into the tumour without touching them. No adequate cause could be discovered for the development of such a tumour in such a place. Not only was his general health good, but no alteration of the tissues of the scrotum had taken place. A subsequent microscopic examination of the specimen proved it to be true bone."

From these facts we are forced to the conclusion, that in twenty months a cartilaginous tumour was developed in a young man's scrotum to attain the weight of five pounds, and that the cartilage underwent transformation into true bone. Cartilaginous growths in and connected with the testicle are extremely rare; and this case is, on the whole, the most extraordinary I have seen on record.